

UNITED STATES MARINE CORPS  
Logistics Operations School  
Marine Corps Combat Service Support Schools  
Training Command  
PSC Box 20041  
Camp Lejeune, North Carolina 28542-0041

AOM 6312

**STUDENT HANDOUT**

**SPLICING AND SOLDERING PROCEDURES**

**LEARNING OBJECTIVE**

1. Terminal Learning Objective: Given TM 9-237, an unserviceable electrical circuit, tools, equipment, and repair parts, repair the circuit, per information contained in the reference provided. (6.3.11)
2. Enabling Learning Objectives: Given TM 9-237, an unserviceable electrical circuit, tools, equipment, and repair parts, per information contained in the reference provided:
  - a. splice automotive electrical wiring, (6.3.11a)
  - b. solder an automotive electrical connection, (6.3.11b)
  - c. repair an automotive terminal connector, and (6.3.11c)
  - d. perform a continuity test. (6.3.11d)

**OUTLINE**

1. **REPAIR THE WIRING SYSTEM**

## STRIPPING AND CRIMPING TOOL

### a. Stripping and Crimping Tool

(1) This is a combination stripping and crimping tool. It is used to strip insulation from electrical wiring and to crimp electrical terminals to the end of wires.

## STRIPPING WIRE

(2) The stripping portion of the tool has different size openings that are numbered. These numbered gauge openings determine the gauge of wire to be stripped of insulation. When the numbered opening is closed around the wire, only the insulation is cut. The wire remains undamaged.

### b. Splicing Wires

(1) First, we use the stripping and crimping tool and remove about one inch of insulation from the end of the wires to be spliced.

## INSULATION REMOVED

(2) Next, we ensure that both ends of the wires are clean of any corrosion. If corrosion is evident, remove it with a wire brush.

(3) Now, place the bare wires together and wrap each wire around the other. The completed splice should look like the one illustrated below.

### SPLICE

(4) If the splice is intended to be temporary, you would insulate the exposed wires by wrapping them with electrical tape.

(5) A permanent splice would require another method. After stripping and cleaning the wires, cut a piece of heat shrink insulation approximately one half of an inch longer than the splice.

### HEAT SHRINK INSULATION

(6) Place the insulation on and behind one of the bare wires and splice the wires as shown in the illustration below.

(7) Using a soldering gun, heat the splice and move the solder across the bare wires. The solder will melt and adhere to the splice as seen in the illustration below.

(8) After the splice has cooled, slide the insulation over so that it covers the entire splice, plus one quarter of an inch overlap.

(9) Only moderate heat is required to shrink the insulation, provide protection against grounding, and to keep out moisture which could cause shorts.

c. Install Terminal Type Connectors

(1) Using the stripping and crimping tool, strip the insulation to equal the depth of the terminal well as shown in the illustration below.

(2) Next, slide the insulator over the cable insulation.

(3) Now, insert the cable into the terminal well and using the stripping and crimping tool, crimp the terminal well.

(4) Then, slide the insulator over the crimped end of the terminal.

d. Continuity Test

(1) Continuity tests are performed using the ohmmeter function of a multimeter.

(2) If the wiring is in the vehicle, disconnect the battery ground cable to prevent the flow of current.

(3) If you are using an analog multimeter, set it to the RX100 position. If you are using a digital multimeter, set it to the 20K position.

(4) Connect the leads of the multimeter to the ends of the wire being tested.

(a) If the circuit is open (incomplete) there is infinite resistance.

(b) If the circuit is good (complete) the meter will indicate zero.

**REFERENCE:**

TM 9-237